DECISION MEMORANDUM

TO: **COMMISSIONER KJELLANDER**
COMMISSIONER REDFORD
COMMISSIONER SMITH
COMMISSION SECRETARY
COMMISSION STAFF
LEGAL

FROM: **KARL KLEIN**
DEPUTY ATTORNEY GENERAL

DATE: **SEPTEMBER 30, 2011**

SUBJECT: **CASE NO. AVU-E-11-04**
AVISTA'S 2011 INTEGRATED RESOURCE PLAN

On August 25, 2011 Avista applied to the Commission for an Order accepting Avista's 2011 Integrated Resource Plan (IRP).

THE APPLICATION

Avista is headquartered in Spokane, Washington and serves electric customers in northern Idaho. Avista says its 2011 IRP "guides its strategy over the next two years and indicates the overall direction of resource procurements for the remainder of a 20-year planning horizon." IRP Executive Summary at i. Avista also says that its "Preferred Resource Strategy (PRS) is a mix of wind generation, energy efficiency, upgrades at existing generation and distribution facilities, and new gas-fired generation." *Id.*

The following summarizes the Company's 2011 IRP filing:

Resource Needs

Avista says plant upgrades and conservation measures are integral to its IRP but ultimately are inadequate to meet expected future load growth. *Id.* Absent new resource additions or new conservation measures, Avista annual energy deficits begin in 2020, with loads and a planning margin exceeding resource capability by 49 aMW. *Id.* Energy deficits rise to 218 aMW in 2026 and 475 aMW in 2031. *Id.* Absent new resource additions or new conservation measures, the Company will be short 98 MW of summer capacity in 2019. *Id.* In 2026 capacity deficits rise to 352 MW and in 2031 they rise to 774 MW. *Id.* Winter capacity deficits begin at 42 MW in 2020 and increase to 401 MW in 2026 and 883 MW in 2031. *Id.*

Avista says increasing deficits result from forecasted 1.6% energy and capacity load growth through 2031, along with the expiration of long-term purchase and sale contracts. *Id.*

Modeling and Results

Avista says it develops its PRS through a multiple-step approach. *Id.* at iii. The Company begins by identifying and quantifying potential new generation resources to serve projected demand needs across the West. *Id.* A Western Interconnect-wide study explains the impact of regional markets on the Northwest electricity marketplace. *Id.* Avista then maps its resources to the present transmission grid configuration in a model simulating hourly operations for the Western Interconnect from 2012 to 2031. *Id.*

Avista says its model adds cost-effective new resources and transmission to meet growing loads. *Id.* Monte Carlo-style analysis varies hydroelectric generation, wind generation, load, forced outages, greenhouse gas emission cost estimates, and natural gas price data over 500 iterations of potential future market conditions. *Id.* The Company's simulation estimates Mid-Columbia electricity markets, and the iterations collectively form the IRP Expected Case. *Id.*

Avista says it then values each new resource and energy efficiency option against the Expected Case Mid-Columbia electricity market to identify its future value to the Company, as well as its inherent risk measured as year-to-year cost volatility. *Id.* These values, and their associated capital and fixed operation and maintenance (O&M) costs, form the input into Avista's PRS Linear Programming Model (PRiSM). *Id.* PRiSM assists the Company by developing optional mixes of new resources at each point on an efficient frontier. *Id.* The PRS provides a "least reasonable cost" portfolio that simultaneously minimizes future costs and risks given legislatively mandated or expected future environmental constraints. *Id.* An efficient frontier helps determine the tradeoffs between risk and cost. *Id.* at iii-iv. Avista says the approach is similar to finding an optimal mix of risk and return when developing a personal investment portfolio. *Id.* at iv. As expected returns increase, so do risks. Reducing risk reduces overall returns. Identifying the PRS is similar to an investor's dilemma. There is a trade-off between power supply costs and power supply cost variability. Lower power cost variability comes from investment in more expensive, but less risky, resources. The PRS selection is the location on the efficient frontier where the increased cost justified the reduction in risk. *Id.*

Avista notes that the IRP includes several scenarios that help identify tipping points where the PRS could change under alternative conditions to the Expected Case. It includes

scenarios for load growth, capital costs, higher energy efficiency acquisitions, and greenhouse gas policies. *Id.*

Electricity and Natural Gas Market Forecasts

Avista says the forecasted levelized average Mid-Columbia market price is $70.50 per MWh in nominal dollars over the next 20 years; the off-peak price is $63.94 per MWh and the on-peak price is $75.42 per MWh. *Id.* at iv, v. These prices include the market impacts of greenhouse gas mitigation beginning in 2015. *Id.* at v.

Avista observes that electricity and natural gas prices are highly correlated because natural gas fuels marginal generation resources in the Northwest during most of the year. *Id.* The Company reports that the nominal levelized expected case natural gas prices at Henry Hub and the range of forecasts from the 500 Monte Carlo iterations performed for the case result in an average, $6.70 per decatherm over the next 20 years results. *Id.*

Energy Efficiency Acquisition

Avista says it commissioned a 20-year Conservation Potential Assessment in 2010. *Id.* at vi. The study analyzed over 4,300 equipment and measure options for residential, commercial, and industrial applications. *Id.* Avista based its IRP conservation potential evaluations on the study's data. *Id.* Avista contends that energy efficiency decreases its energy requirements by 120.2 aMW, or approximately 10%. *Id.* Further, by 2031 energy efficiency reduces load by 310 aMW (288 aMW net after measure life expectancy adjustments). *Id.*

Preferred Resource Strategy

Avista says the PRS included careful consideration by the Company's management and the Technical Advisory Committee of the information gathered and analyzed in the IRP process. *Id.* at vii. It meets future load growth with efficiency upgrades at existing generation and distribution facilities, conservation, wind, and simple- and combined-cycle natural gas-fired combustion turbines. *Id.* The Company says the PRS has changed only modestly from the 2009 IRP. *Id.* at viii. According to the Company, the PRS resources for the 2011 IRP, on a nameplate capacity basis, are: 120 (Nameplate) MW of NW Wind by the end of 2012 and 2019-2020; 83 MW of SCCT by the end of 2018 and 46 MW by 2029; 4 MW of Existing Thermal Resource Upgrades by the end of 2019; 83 MW of SCCT by the end of 2020; 270 MW of combined-cycle combustion turbine (CCCT) by the end of 2023 and 2026. *Id.* Efficiency improvements on a

peak reduction (MW) basis are: 28 MW of distribution efficiencies by the end of 2012-2031; and 419 MW of energy efficiency by the end of 2012-2031. *Id.*

Avista says the present value of the investment required to support the 2011 PRS is just over $0.84 billion; the nominal total capital expense is $1.7 billion over the IRP timeframe. *Id.* at ix. Avista also forecasts spending $1.4 billion over the IRP timeframe on conservation acquisitions. *Id.*

Greenhouse Gas Emissions

As with all Avista IRPs since 2007, Avista has included the costs of greenhouse gas policies in the Expected Case for this IRP. *Id.* The Company says that since the 2009 IRP, less certainty exists around the direction of future of greenhouse gas policies. *Id.* To address this uncertainty, the 2011 IRP considers four policies. Each represents a different policy alternative beginning in 2015. *Id.* The policies are: (1) a regional cap and trade regime, (2) a national cap and trade regime, (3) a national carbon tax, and (4) the absence of any greenhouse gas policy. *Id.* The impacts of greenhouse gas policies on the Expected Case are the result of a weighted average of these policies as included in the stochastic analysis of the IRP. *Id.*

Action Items

Avista says its 2011 Action Plan outlines activities and studies between now and the 2013 Integrated Resource Plan. *Id.* at xi. Avista states that the Action Plan includes input from Commission Staff, the Company's management team, and the Technical Advisory Committee. *Id.* Action item categories include resource additions and analysis, demand-side management, environmental policy, modeling and forecasting enhancements, and transmission planning. *Id.*

STAFF RECOMMENDATION

Staff recommends that the Commission process the Company's Application under Modified Procedure with a 60-day comment period, followed by a 14-day reply comment period.

COMMISSION DECISION

Does the Commission wish to process the Company's Application under Modified Procedure with a 60-day comment period, followed by a 14-day reply comment period?

Karl Klein
Deputy Attorney General

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